Wanted Poster

(What Do Macroinvetebrates Tell Use About Stream Health)

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Grades: 7-12 grades
Subjects (s): Science, Art
Duration: Six 50 minute class periods
Description: Educate students to understand the invertebrates that are found in different quality levels of streams.

Goals: Combining science and art in the design of a scientific informational poster. The poster should illustrate the invertebrates found in very good water quality, good water quality, and poor water quality.

***Teacher Instruction*:** locate three streams with different water quality that are available to collect samples. (Contact Fish & Game biologist or other aquatic resource area.

Objective:

1. Have students learn basics of field collection techniques.
2. Have students learn the importance of the invertebrate population in a stream bed.
3. Have students learn how to use information collected to compile a scientific informational poster.
4. Have student use previously acquired art skills to design information poster.

Materials: (field)

1. Stream collection D-ring aquatic net.
2. Collection containers with labels for stream identification
3. Macro invertebrate field guide (http://www.epa.gov/bioindicators/html/benthosclean.html)
4. Field data collection sheet (see attached)
5. Clipboards and pencils
6. Rock scrubbing brush
7. Water boots
8. Weather related clothing, sunscreen, and insect repellant

Materials: (classroom)

1. Paper, pencils, and erasers.
2. Poster board.
3. (7-8th grade) colored markers.
4. (9-12th grade) tempera paint.
5. Paint brushes, water containers, and palette
6. Rulers

Procedure:
Science

1. Class discussion about stream health and the variety of invertebrates that can be found
2. Continue discussion including field collection techniques

(http://www.epa.gov/owow/monitoring/volunteer/stream/)

3. Designate student responsibility for the collection and data
4. Field trip to collect data
5. Start in class activity to catagorize invertebrates according to stream health

Art

1. Discussion about composition of a scientific poster (see attached)
2. Thumb nail sketches of poster design
3. Brainstorm with class and form a checklist about information needed on poster
4. Review of lettering techniques and use of guidelines

(http://home.att.net/~tisone/ULLettering.htm)

5. Allow students to work together in groups of two and make their poster

Assessment:

Science

1. Teacher checks the correct identification of invertebrates
2. Teacher assesses proper field techniques

Art

1. Teacher checks for the correct composition and layout of scientific poster
2. Teacher check thumbnail sketches for pertinent information
3. Teacher grades on neatness, proper use of media, effort, and final composition

Montana Content Standards:

Science Content Standards: 1,3, & 5
Art Content Standards: 1,2,4, & 6

Field Data Chart

Invertebrate Found	Stream 1	Stream 2	Stream 3
Mayflies			
Stoneflies			
Caddisflies			
Non case building Caddisflies			
Dragonflies			
Blood Midges			
Midges			
Black Flies			
Crane flies			
Snipeflies			
Riffle Beetles			
Water Boatmen			
Other Beetles			
Scuds			
Crayfish			
Snails			
Clams			
Worms Segmented			
Worms Nonsegmented			
Leeches			
Other:			
Other:			
Total invertebrates found:			